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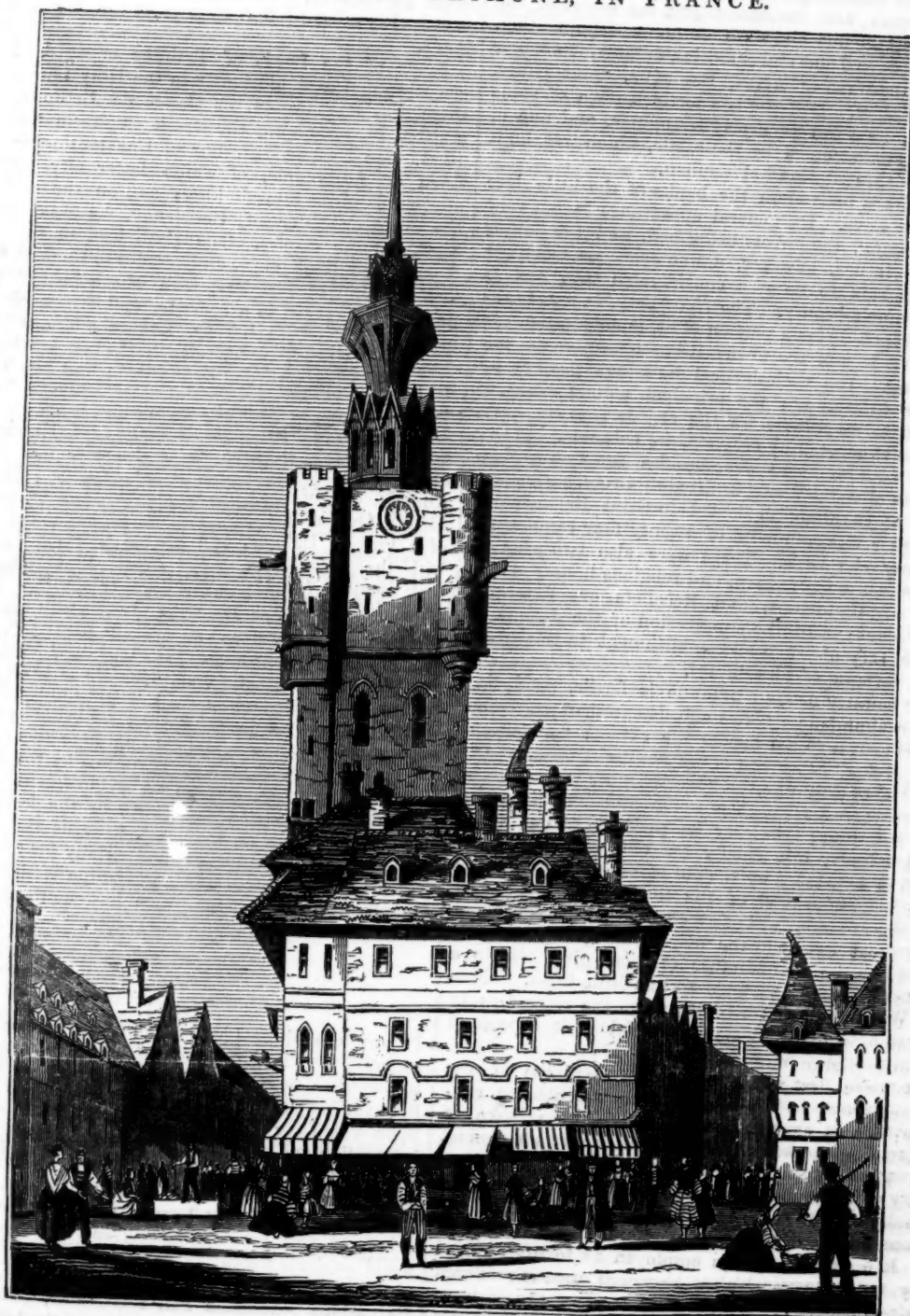
AUGUST,

31ST, 1839.

PRICE
ONE PENNY.



THE TOWN OF BETHUNE, IN FRANCE.



HOTEL DE VILLE, BETHUNE.

THE TOWN OF BETHUNE, IN FRANCE.

BETHUNE is a little town in the north of France, situated in the department of the Pas de Calais. Under the ancient division of the kingdom it was comprised within the Province or County of Artois, which formed a part of what was generally termed the French Netherlands, though not of the province which was specifically called Flandre; and it held the third place among the towns of that district. It is now the capital of an *arrondissement* containing eight cantons; and its rank among the towns of the department is but the sixth in point of population. It has between 7000 and 8000 inhabitants, a smaller number than either Arras, Boulogne, Saint Omer, Calais, or Aire. Bethune is a fortified town of some strength; its form is nearly triangular, and one of the angles is occupied by the castle, which was built by the celebrated Marshal Vauban.

Bethune is built upon the banks of the little river Bietre, or Lave. Its general appearance is not very prepossessing, the streets being bad, and the houses ill-built; it has, however, a fine place or square—which is said to be of a considerable size, and to possess much beauty. The *Hôtel de Ville*, or town-house, which forms a portion of it, is among the best public edifices of the town; it is represented in our engraving. The ecclesiastical buildings possess no peculiar attractions; the principal among them is somewhat remarkable for the elegance of its nave, which is supported by very slender columns. Before the Revolution there was, besides the two parish-churches of Saint Waast and Sainte Croix, a collegiate chapel of Bethune, dedicated to Saint Barthélémy; its chapter was composed of twenty-four canons and as many chaplains. There were also two priories, four convents for women, and religious houses of the order of Capuchins, and Recollets or Reformed Franciscans; until the suppression of the Jesuits in France, they also had an establishment in this town, with a revenue of 8000 livres.

The country around Bethune is fertile, producing corn in abundance; it also affords excellent pasturage. Flax is grown to a considerable extent; "an arpent of good flax" is spoken of by Arthur Young, under the head of Bethune, as "worth more than one of wheat; yet good wheat is worth 200 livres." Coleseed is another article of its produce, and is cultivated largely, but chiefly for the sake of the oil, which is expressed by the aid of mills in the immediate neighbourhood of the town. The cheeses of Bethune are renowned as excellent; they are consumed to a great extent in the neighbouring departments, and thus the manufacture of them gives rise to a traffic of some importance to this little town. There is a navigable canal running from the river Lys to Bethune, where it forms a beautiful dock capable of admitting large barges.

Bethune first came under the dominion of the French crown in the middle of the seventeenth century; it was captured in 1645 by Gaston Duke of Orléans, in the war which France carried on against the King of Spain and the Emperor of Germany, during the minority of Louis the Fourteenth, and the possession of it was definitively secured by the Treaty of the Pyrenees in 1659. The celebrated Vauban was afterwards employed to fortify it; and the skill and care which he bestowed upon it rendered it a strong place. Nevertheless, it was captured from the French by the Duke of Marlborough in the early part of the eighteenth century. The siege began on the 15th of July, 1710; two regular attacks were

made, and on the 28th of August following, the town surrendered. At the peace of Utrecht, in 1713, this conquest was restored, and Bethune has ever since remained annexed to the French crown.

Though Bethune is but a small town, its name sounds familiarly in our ears, from the circumstance of its having given a title to one of the most illustrious houses of France, among whose members not the least renowned is the famous Maximilien Bethune, Duc de Sully. The seigneurs, or lords, to whom it belonged before it was incorporated with the kingdom of France, were a noble race of high antiquity, and large possessions, connected by alliances with the principal families of that country and of the Netherlands.

Some of the Lords of Bethune engaged in the crusades, and died gloriously in the Holy Land; and there was one Conon, or Colon de Bethune, who assisted in conquering the Greek empire in the year 1203. He became Governor of Constantinople and Lord of Adrianople, of which latter city his son afterwards made himself king; and on the death of the emperor Peter of Courtenay, he was named regent of the empire. The sixth lord of Bethune, Robert the Fifth, came as ambassador to England from Count Philip of Flanders, with whom he had been previously engaged in a crusade, and afterwards accompanied the French king, Louis the Young, on a visit to the tomb of Thomas à Becket at Canterbury; he then returned to Palestine and was killed at the siege of Ptolemais.

A branch of this noble family was established in Scotland, about the end of the twelfth or the beginning of the thirteenth century, by the Count of Aumale, one of the sons of Robert of Bethune, the Fifth. One of his descendants married the heiress of a lord of Balfour, and having been thus united with the possessions of the family of Bethune, he took the title of Balfour, which his successors retained after him. "There is no family in Scotland," says the *Dictionnaire*, "which has arrived at greater honours either in church or state. It has given to the church one cardinal, three archbishops, and many other dignitaries; to the state, two high chancellors, one high treasurer, besides chamberlains, ambassadors, and other great officers." The cardinal here spoken of is the individual more commonly known by the slightly corrupted name of Beaton or Beton,—who was so remarkable for his Catholic zeal, in the persecution of the Protestants of Scotland, towards the middle of the sixteenth century, and especially for the share which he had in the burning of George Wishart, their famous preacher, a crime which hastened not a little the tragical termination of his career.

LIGHT.

It was a sublime idea of one of the ancient philosophers, that, if the Almighty were to become visible to mankind, he would choose truth for his body, and light for his shadow. Indeed, there are few subjects upon which the natural philosopher lingers with more instruction and admiration, than upon the laws which regulate the various and the splendid phenomena of optical science. The theories of the production and the propagation of light, have long engaged the master-minds of first rate mathematicians, to whom it presents subjects worthy of the most refined analytical skill. To trace the progress of a ray of light, through its various reflections and refractions, (whether as concerns the exquisite mechanism of the human eye, or that admirable specimen of human ingenuity, the

reflecting telescope of the astronomer,) is productive of the most valuable results. To decompose such rays, and estimate the varieties of colour so produced; to extend the information thus acquired to the infinite variety of nature's beauteous aspect, from the plainest flower to the rainbow's splendid arch:—all this forms but a small part of the study of that wonderful fluid (if such we may call it) which, when God created, he pronounced "good."

When in the full possession of so great a blessing as light, it is often difficult for us correctly to estimate all its advantages. Experience would tell us, that deprivation alone makes us sensible of the value of a recent possession. Man, in his restless progress through life, is continually struggling to gain a position beyond the one he actually occupies; a prospective advantage, which his fond and ardent fancy presents to him, not only as desirable, but as almost capable of ensuring perfect felicity. A being of warm hopes and high aspirations, he is not content with a stationary position. He struggles to improve it, and often barter certain good for imaginary felicity. What wonder, then, if he sometimes exchange his pure gold for dross covered over with glittering tinsel, whose worthlessness actual possession and use can only detect.

As by contrasting his present inferior position with the happiness of that which he may have lost, a man learns to value above all price the good which he may no longer call his own; so may we learn to value the gifts with which we are blessed, if we can, for a moment, so far put aside our instinctive selfishness, as to place ourselves in the situation of one whose means of communication with the external world are fearfully limited:—of one deprived of sight. By contemplating such an one, and transferring his deprivation to ourselves, we can, perhaps, learn to value the possession of a sense, with which, if suddenly deprived of it, we should think the very desirableness of our existence is united. Great, indeed, must be the love, when so mighty a mind as that of our immortal Milton, so rich in stores within itself,—

A genius universal as his theme;
Astonishing as chaos, as the bloom
Of blowing Eden fair, as heaven sublime:

when such a mind, which we should think securely depended upon external objects for support, pours out its plaint in language, as remarkable for its fervid and convincing power of truth, as for its poetical aspiration, we are enabled to form a somewhat correct idea of the value of light, and of the organ by which it is appreciated.

— Thus with the year
Seasons return; but not to me returns
Day, or the sweet approach of even and morn,
Or sight of vernal bloom or summer's rose,
Or flocks, or herds, or human face divine;
But cloud instead, and ever-during dark
Surrounds me, from the cheerful ways of men
Cut off; and for the book of knowledge fair,
Presented with a universal blank
Of Nature's works to me expunged and rased,
And wisdom at one entrance quite shut out.

[TOMLINSON'S *Natural Philosophy*.]

WHERE are divers opinions, they may be all false; there can be but one true: and that one truth oft-times must be fetched by piecemeal out of divers branches of contrary opinions. For, it falls out not seldom, that truth is through ignorance or rash vehemence, scattered into sundry parts; and like to a little silver melted among ruins of a burnt house, must be tried out from heaps of much superfluous ashes. There is much pains in the search of it, much skill in finding it; the value of it once found, requites the cost of both.—
BISHOP HALL.

SELTERS WATER.

THREE leagues from Limburg is Niederselters. The mineral water of this place is one of the most famous in Germany. The spring is situated at the top of a mountain in the midst of a wild and dreary country. It was only discovered between the years 1500 and 1550, and was filled up during the thirty years' war. The excellent qualities of this water do not seem to have been formerly appreciated, as the annual rent was at one time only two florins, twenty kreuzers. Towards the end of the eighteenth century it rose to five florins, and in twenty years afterwards to fourteen thousand florins. When the electors of Treves, to whom the spring belonged, took an account of it, it produced annually eighty thousand florins. This water contains a great deal of alkali, which contributes to dissolve the iron in it. The moderate combination of this substance with the carbonic gas, causes the use of this water (which is easily preserved,) in almost every country. It is even sent to both the Indies. Since 1803 this spring has become the property of the duchy of Nassau. The sale of it varies extremely, and depends entirely on the weather; if the summer is warm, more of this water is consumed, since it is then taken as an agreeable beverage as well as a salutary medicine. When mixed with wine and sugar it resembles champagne in taste, but is more refreshing. In a recent year upwards of a million and a half of pitchers of it were exported. It may scarcely be thought possible to fill so many pitchers, each of which contains three pounds of this liquid, from the water of a single fountain, if it is considered that it can only be drawn in five months of the year, and consequently (deducting Sundays and holidays) that seven thousand pitchers must be filled each day, covered on the top and sealed with resin. But all this may be easily believed when the manner in which it is done is made known. It was formerly accomplished by stout peasant girls, who had acquired great dexterity in the employment: but for some years past a machine has been used, by means of which a large number of pitchers are at once plunged beneath the water and drawn out when full. In 1822 the number of pitchers and half-pitchers filled here amounted to 1,900,000. The operation commences early in the morning, and continues till eleven o'clock, during which time no other persons may draw water. From eleven till one, in the middle of the day, the neighbouring persons are allowed to procure water, but no person is permitted to get more than a man can carry: carriages may not come to the fountain, they must load at the warehouse, where one hundred pitchers, sealed with resin, will cost fourteen florins. From one till seven o'clock pitchers are filled for government.—SCHRIEBER'S *Rhine*.

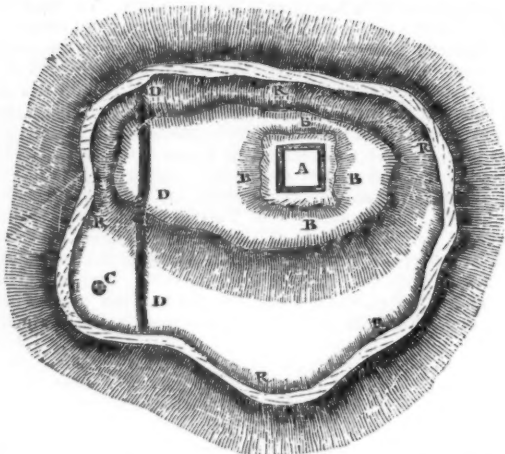
ON INTELLECTUAL ENJOYMENTS.

It is not only with reference to the supply of his physical wants to the gratification of his physical perceptions, and to the acquisition of a mastery over the material things around him, that man finds a source of happiness in his intercourse with nature, and the knowledge it is permitted him to acquire of the mighty secrets of creation.

The relation between himself as a whole, and the material portion of himself, and the material portion of that which surrounds him, does not constitute the whole of his active being. He has another being, separate and distinct from that which is the subject of sensation; he has other thoughts, other wishes, other hopes, than those which link themselves with matter, other than those which are coupled with the necessities or gratifications of his perishable body.

On these other thoughts, wishes, and hopes, who, raised above the necessity of devoting the whole of his energies to the supply of his daily wants, does not feel the power? There is probably no period in the history of mankind in which a large portion of their number have not been relieved from this necessity; and accordingly there is no known period in their history in which may not be traced the operation of these thoughts, hopes, and wishes, separated from the mere brute perceptions of the individual, and fixed upon the solemn mysteries of the universe. It is in the hopes, the fears, and the enjoyments of this intellectual portion of his being that consists the abstract love of knowledge,—of knowledge for its own sake: and in proportion as the intellectual predominates over the sensual part of him, will that love, that thirst after understanding, be more intense. It is manifest that it belongs more especially to a state of society in which knowledge applied to the physical wants of mankind has, to a certain extent, rendered them independent of those wants.—M.

VITRIFIED FORTS OF SCOTLAND. No. I.



PLAN OF THE VITRIFIED FORT ON THE SUMMIT OF DUN CREICH.

THE notice of antiquaries and learned men generally, has been directed for more than half a century, to some remarkable objects in the north of Scotland, generally known by the name of *Vitrified Forts*. But although the attention of Sir G. Sinclair, Dr. Macculloch, Dr. Anderson, Dr. Tytler, and others, has been drawn to the subject, and many theories started, the true origin and nature of these forts is involved in doubt! We shall, in the present article, describe several of them; and in another article, we shall briefly consider the theories which have been offered for their explanation.

In the county of Sutherland, in the northern part of Scotland, there is a ridge of rocks projecting into the Frith of Dornoch, and terminating in an abrupt precipitous hill, called *Dun Creich*, or the *Hill of Creich*. Round the edge of the summit of this hill, there is a rampart of loose stones, marked on the accompanying plan by the letter R. A marks the site of the remains of a building constructed of stone and lime. It is about thirty feet square, the walls being three feet thick, but not now more than four feet high. On the outside of this building, as marked by the letter B, is another rampart of loose stones, which is probably the remains of a structure intended for the same use, but which has been exchanged for the more substantial and convenient building within. C is a well, which has been filled up. There is a very good spring of water on the outside of the rampart, on the south side of the hill. D marks a line on which there is a line of stones, bearing abundantly the marks of fire, and which is to be traced across the whole summit. The surface of the hill within the outer rampart is uneven and rocky; and that part of it which is crossed by the vitrified mass, is rather lower than the eastern portion. The line D represents the only portion which is vitrified, and it passes over the top of the hill in the only direction in which a range of signals could be made, so as to be distinctly seen further up the country:—this fact has an important relation to a theory which we shall have to allude to hereafter. In our next paper we shall give a representation of Creich hill, with the fort upon it. We must now speak of other vitrified masses in different parts of Scotland.

At about two miles from the town of Dingwall in the county of Ross, is a hill called *Knock Farril*, forming a double ridge, which bounds the valley of Strathpeffer. There is a flat area on the top about 135 yards long, and 45 wide. Round the area, and close to the edge of the hill, there are masses composed of stones

cemented together by melted matter, irregular in their positions and sizes, and extending at each end about fifty yards from the area. The vitrification is everywhere superficial, extending but a very little way among the stones.

In Kirkcudbrightshire, about half a mile S. E. from the church of Anwoth, is a steep rocky hill about 300 feet high, which has been fortified in the most accessible places by a double fosse. The top, which forms a level area 30 paces long and 20 broad, is nearly surrounded with an irregular ridge of loose stones, intermixed with vast quantities of vitrified matter. The stones, consisting of the common blue schist of the country, have been softened, twisted, and partly fused by the fire. These heaps of loose stones and vitrified matter are scattered irregularly over the top of the fort, and exhibit no appearance of having ever formed a continued wall. The vitrification is only partial and superficial, and seems to have been the accidental effect of large fires:—but as this is one of the theories of explanation, we must leave it till the next article.

In Perthshire there is a hill called Barryhill, whose summit is levelled into an area 182 feet long, by 72 broad. Around the area a mound of earth was raised, from 6 to 8 feet high, and 10 to 12 broad at the top. On this mound a wall of freestone was built, without any cement whatever. The foundation of the wall was composed of rough granite, and still remains. It is of the same breadth with the summit of the mound; but the height of the wall cannot be now known. Among the ruins are several pieces of vitrified stone. Along the west and north borders of the area, are barracks or huts of dry stone, and sufficiently sheltered by the mound or wall; but no structures of this sort can be traced in the south part of the area. As the north and west sides of the hill are steep, and of difficult access, there was no need of an outer ditch in those quarters; but towards the south and east, there is a ditch 10 feet broad, and 12 to 16 feet below the foundation of the wall. At the south-east extremity of the fort, a narrow bridge was raised over the ditch, 18 feet long, and 2 broad, except towards the ends, where the breadth was increased. It was composed of stones, laid together without much art, and vitrified above, below, and on both sides, so that the whole mass was firmly cemented. A few yards distant from the ditch, there is an outer wall, the foundation of which is about 8 feet lower than the summit of the mound. The approach to the fort is towards the north-east, along the verge of a precipice; and the entrance was secured by a bulwark of stone, the ruins of which are extant. There is no vestige of a well within the fort; but westward, between the basis of the mound and the precipice, there was a deep pond or lake, recently filled up by the tenants of that neighbourhood. About a quarter of a mile eastward, on the declivity of the hill, there are some remains of another oval fort, of less extent than the preceding, consisting of a strong wall and ditch. Tradition says that there was a subterraneous communication between these forts, which is not improbable.

In the island of Bute, in the parish of Kingarth, there is a vitrified fort; and in Cantire, at the entrance of the bay of Carradale, on a small island, vitrified masses enclose about a rood of ground. Some others have been observed, in Argyleshire, particularly one on the hill of Duns Keig, which commands the entrance of Loch Tarbert. On the same hill, ramparts are seen constructed with dry stones, without any vitrification.

From a hill called Laws, near the village of Drumsturdymuir, about five miles north-east from Dundee,

there is an extensive view of the sea and adjacent country. The area on the summit is 133 yards in length, and 66 in breadth; and all round it are to be seen the vestiges of a broad rampart. On the east end, from which the most extensive view is obtained, are large masses of vitrified stones.

In Aberdeenshire is a hill called the Top of Noth. The summit of this hill, on all sides, presents to a person who approaches it, a sloping mound or pile of loose stones, of different sizes and shapes, few of them larger than a man may lift with both hands, though some few are ten times that bulk. When we get on the top of this mound, or enter by an opening at the east end of it, we discover that it does not consist of a *heap* of such stones so as to make a large cairn, but that there is an open area of grass ground in the middle, about sixty yards long and twenty-five wide. The mound of stones which surrounds this space has, on the inside, the appearance of a thick strong wall that had for a long time been in ruins. The height of these ruins above the inner area is pretty uniform, and may be from nine to twelve feet. A slight inspection discovers, that what has the appearance of a ruinous wall, has never been connected together by any cement, as nothing of that sort can be discovered where it might most probably be found. But, at the same time, there are symptoms that very large masses have been formed by the union of smaller stones fused by the force of fire in various degrees.

In the same county is the hill of Dun's Deer, in the vale of Garioch, on which there are also vitrifications; and, as in Dun Creich, the remains of a building constructed with lime-mortar. This tower is of larger dimensions, and of greater strength, than that on Dun Creich, being sixty feet square, and the walls about twelve feet in thickness.

About four miles east from Forfar is the castle hill of Tillhaven, the vitrifications on which have led Dr. Anderson to compare them to the effect of fire upon a lime-kiln; and he represents them as having been produced by the irregularity of the weather, the wind blowing sometimes hard, sometimes gently. The walls in some parts of this fort have been laid bare, so as to appear at least ten feet high. The stones are in courses, and banded, and have been very unequally and irregularly affected by the fire, and some of them not at all: seven or eight varieties of stone appear to have been made use of. Had there been an intention to vitrify this wall, the most fusible stones would probably have been selected; but instead of this, they have been placed in the wall indiscriminately with others.

A few miles from Fort William, in the parish of Kilmalie, is the hill of Dundhairdghall, the summit of which is surrounded by a vitrified mass of stone. This hill commands a view of a great part of Maingre, and the whole of Glen Navis. In the valley of the Beaully river, in Inverness-shire, about two miles north-west of the church of Kilkarlity, is also a vitrified fort, called Dun Thionn. It is circular, and about thirty yards in diameter.

The hill of Dun Mac Sniathain is nearly precipitous along the quarter of its circumference, and a series of parallelogramic works have been constructed so as nearly to cover the principal and precipitous part of it to the very edge. The greater portion of the hill being thus occupied by two of these works, the strongest part was cut off by a wall from the more accessible end. The thickness of the walls of this fort is about twelve feet. They bear the marks of vitrification throughout their whole extent, but in some places it is more complete than in others. In

no case does it seem to have extended more than a foot or two from the foundation; and the most perfect slags are found at the bottom of the wall. As we proceed upwards, we find a mixture of porous slag with stones, which having been but partially fused have adhered together in a mass. Higher still we meet with stones, which, though unvitified, are roasted by the action of the heat; and at length the marks of fire diminish until they almost entirely disappear, leaving only a heap of loose and unconnected stones. The loose part of the wall having fallen, through time, has caused that accumulation of rubbish which we find about the vitrified parts. Both the outside and inside of the walls near the ground are rendered much thicker than their true measurement shows by the heaps of rubbish to which we here allude.

Thus, then, it appears that in all these places there is a fortified spot, with a particular part of it in a state of vitrification. The origin of the forts themselves is easy to imagine; being for places of defence in unsettled times. But the cause of the vitrification is still a mystery; and we shall in another paper detail the principal theories which have been advanced on that subject.

MOZART.

A few anecdotes of the early proficiency of Mozart in his favourite science may not be unacceptable to the lovers of music.

Mozart was scarcely three years old when his father began to give lessons on the harpsichord to his sister, who was then seven. His astonishing disposition for music immediately manifested itself. His delight was to seek for *thirds* on the piano, and nothing could equal his joy when he had found this harmonious chord. When he was four years old, his father began to teach him, almost in sport, some minuets, and other pieces of music. Mozart would learn a minuet in half an hour, and a piece of greater extent in less than twice that time. Immediately after, he played them with the greatest clearness, and perfectly in time. In less than a year, he made such rapid progress, that at five years old he invented little pieces of music which he played to his father, and which the latter, to encourage the talent of his son, wrote down. The elder Mozart, returning from the church one day with a friend found his son busy in writing. "What are you doing there, my little fellow?" asked he. "I am composing a concerto for the harpsichord, and have almost got to the end of the first part." "Let us see this fine scrawl!" "No, I have not yet finished it." The father, however, took the paper, and showed his friend a sheet full of notes, which could scarcely be decyphered for the blots of ink. The two friends at first laughed heartily at this piece of scribbling; but, after a little time, when the father had looked at it with more attention, his eyes were fastened on the paper, and at length overflowed with joy and wonder. "Look my friend," said he, with a smile of delight, "everything is composed according to the rules: it is a pity that the piece cannot be made any use of; but it is too difficult: nobody would be able to play it." "It is a concerto," replied the son, "and must be studied till it can be properly played. This is the style in which it ought to be executed." He accordingly began to play, but succeeded only so far as to give them an idea of what he had intended.

When taken to Vienna, the young Mozart performed before the court. The emperor Francis the First said to him, in jest, on that occasion, "It is not very difficult to play with all one's fingers, but to play with only one, without seeing the keys, would indeed be extraordinary." Without manifesting the least surprise at this strange proposal, the child immediately began to play with a single finger, and with the greatest possible precision and clearness. He afterwards desired them to cover the keys of the piano-forte, and continued to play in the same manner, as if he had long practised it.

From his most tender age, Mozart, animated with the true feeling of his art, was never vain of the compliments

paid him by the great. He only performed insignificant trifles when he had to do with people unacquainted with music. He played, on the contrary, with all the fire and attention of which he was capable, when in the presence of connoisseurs, and his father was often obliged to have recourse to artifice, and to make the great men, before whom he was to exhibit, pass for such with him. When Mozart, at the age of six years, sat down to play in the presence of the emperor Francis, he addressed himself to his majesty, and asked, "Is not M. Wagenseil here? We must send for him. He understands the thing." The emperor sent for Wagenseil, and gave up his place to him by the side of the piano. "Sir," said Mozart to the composer, "I am going to play one of your concertos; you must turn over the leaves for me."

On Mozart's return from Vienna to Salzburg, he brought with him a small violin which had been given him, and amused himself with it. A short time afterwards, Wenzl, a skilful violin-player, who had then just begun to compose, came to Mozart, the father, to request his observations on six trios, which he had written. Schachtner, the archbishop's trumpeter, to whom Mozart was particularly attached, happened to be at the house, and we give the following anecdote in his words. "The father," said Schachtner, "played the bass, Wenzl the first violin, and I was to play the second. Mozart requested permission to take this last part; but his father reproved him for this childish demand, observing that as he had never received any regular lessons on the violin, he could not possibly play it properly. The son replied that it did not appear to him necessary to receive lessons in order to play the second violin. His father, half angry at this reply, told him to go away, and not interrupt us. The child was so hurt at this that he began to cry bitterly. As he was going away with his little violin, I begged that he might be permitted to play with me, and the father, with a good deal of difficulty, consented. 'Well,' said he, 'you may play with M. Schachtner, on condition that you play very softly, and do not let yourself be heard, otherwise I shall send you out directly.' We began the trio, little Mozart playing with me; but it was not long before I perceived, with the greatest astonishment, that I was perfectly useless. Without saying anything, I laid down my violin, and looked at the father, who shed tears of affection at the sight. The child played all the six trios in the same manner. The commendations we gave him made him pretend that he could play the first violin. To humour him, we let him try, and could not forbear laughing, on hearing him execute this part, very imperfectly it is true, but still so as never to be set fast."

When Mozart was in his seventh year, his family set out on their first expedition beyond the boundaries of Germany. The tour commenced with Munich, where the young artist played a concerto on the violin, in presence of the Elector, after an extempore prelude. On their arrival in Paris, Mozart and his sister performed at Versailles, and the former played the organ of the king's chapel, before the court. In April, 1764, the Mozarts went to England, and the children performed before the king, and, as at Versailles, the son played the organ of the royal chapel. His performance on the organ was thought more of at London than his exhibitions on the harpsichord.

Though the child every day beheld new proofs of the astonishment and admiration inspired by his talents, it neither rendered him proud nor self-willed: a man in talent, in everything else he was an obedient and docile child. Never did he appear dissatisfied with anything that his father ordered. Even after playing the whole of the day, he would continue to do so, without showing the least ill-humour, when his father desired it. He understood and obeyed the slightest signs made by his parents, and carried his obedience so far as to refuse the sweetmeats which were offered him, when he had not their permission to accept them.—*Life of Mozart.*

THERE is a tribe of monkeys in Trinidad who have a great aversion to water, and if obliged to cross a narrow stream they climb a tree near the bank, and form a chain by hanging from the tails of each other; the whole string of animals then swing backwards and forwards until the lowest, to whom the post of honour has been assigned, alights on the opposite bank, and pulls over, by the aid of the "tail," his companions on the tree and bank; this singular operation is carried on amidst terrible howling, and with the most frightful cries and grimaces.—*MARTIN'S British Colonies.*

ON THE CUTTING DOWN OF OAK TREES.

OAKS, like all other trees, vary exceedingly in their growth, according to soil, situation, &c., consequently, some will come to maturity much sooner than others, and will attain, in a given time, to a much larger size. No one fixed period, therefore, applicable to all, or even the generality of cases, can, as I conceive, be accurately determined, at which these trees shall have arrived at perfection, as this must differ according to circumstances. Without laying down precise rules, a practised eye will be able readily to decide when a tree is ripe for the axe; in other words, when it has come to its best. There will be no longer any vigorous shoots in the extremities (in woodman's phrase, "no twig"); but instead, a curling or crinkling of the spray or terminal branches, with scarce any perceptible growth: dead branches or small arms will occasionally be seen towards the top, &c.; and above all, there will be a tightness,—a contraction of the bark on the stem of the tree; i. e. the bark, ceasing to expand, will, of course, no longer exhibit those light red or yellow perpendicular streaks in its crevices, which are a certain proof of its expansion, and of the consequent growth of the wood beneath. If the wood-pecker has been busy about a tree, it is a sure indication that it is time, and more than time, to fell it; for this bird never attacks a perfectly sound tree, though often unjustly accused of so doing. But, as already said, an experienced eye will at once perceive the state and condition of a tree, without minutely attending to these and the like particulars.

To the question, "at what age oaks should be cut down, so as to make the best return in point of profit," the answer involves matter of nice and complicated calculation; besides that much will depend on the demand for timber of this or that particular size and quality in each neighbourhood respectively. It is proverbially said that "an oak tree is a good banker;" but I have some misgivings as to the truth of that position. The oak is unquestionably a tree of slow growth; and hence, it is proverbially said again, that "a withy will buy a horse before an oak will buy a saddle." It is held by some as an established maxim, that if an oak were to be cut down when it was worth a pound, and the money put out to interest, it would produce a much larger sum than the tree would sell for when arrived at maturity. This may probably be very true; but then, were such practice universally adopted, it is evident there could be no large timber grown—nothing but mere poles: and what a woful deficiency would ensue of fine ornamental oaks!

The proper management and nursing of timber require some judgment and attention, of course, and more knowledge of the subject, as well as more taste than, perhaps, most proprietors are possessed of. Doubtless, near a man's residence, profit must, in numberless instances, be sacrificed to ornament, shelter, &c. Ancient venerable trees form the noblest appendage to an estate, and one which, indeed, it would be sacrilege to destroy. Trees, too, of extraordinary beauty, or those presenting any remarkable peculiarity of growth or singularity of conformation, should, of course, in all cases, as far as possible, be preserved as curiosities. At the same time, with regard to woods,—woods, I mean, designed principally for profit,—there can be no question but that the prevailing fault with most proprietors is that of being too sparing with the axe, leaving too much and allowing oaks to remain long after they have ceased to remain with profit. A landed proprietor very naturally and properly wishes to encourage the

growth of oak-timber on his estate; accordingly, when a wood is to be cut, directions are given to the bailiff, or perhaps even to a common labourer, carefully to preserve the oaks; and the consequence is, that trees of this kind are spared, time after time, which do not increase one shilling in value by the time the wood comes round to be cut again, a period, it may be, of from ten to fourteen or sixteen years. Now the evil of this system is twofold: first, there is the positive loss to the proprietor of the interest of the money which the trees would have sold for, had they been felled; and, secondly, what is far worse, by allowing them to encumber the ground, a stop is put to a *succession of young trees*, which would have been certain to spring up in their room, according to that just, though homely adage of our provincial woodmen, "cut wood, and have wood." I could point out instances of woods which are absolutely going to ruin for want of thinning, and out of which the present owners might enrich themselves, and at the same time benefit their successors.

The subject of a *succession of trees* in woods is not enough attended to. It will perpetually happen, that a thriving tree, one that is "paying money" (as the phrase is), must yet be sacrificed for the sake of some four or five, or perhaps half score, young saplings, which stand around it, and which of course, will be entirely spoiled by the overshadowing branches of their usurping neighbour, if the latter be allowed to remain for another term of ten, twelve or more years. In cases like this, therefore, there is scope for the judgment and discrimination of the woodman; and I admit that it is often not a little painful and perplexing to come to a decision. When a prisoner is put upon trial for his life, the jury are always very properly directed, if they have any doubts as to the guilt of the accused, to give him the benefit of such doubts, and to acquit him. Now the woodman, I conceive, would best consult his interest by acting in a manner the very reverse of the jury; and, as a general rule, if he has any doubts about the propriety of cutting down a particular tree, in cases like the one just mentioned, I believe he will not greatly err (at least, not in the majority of instances) by consigning it to the hands of the feller, reluctant though he may feel so to do.

[Rev. W. T. Bree, in the *Gardener's Magazine*.]

THE sperm whale is a gregarious animal, and the herds formed by it are of two kinds—the one consisting of females, the other of young males not fully grown. These herds are called by whalers "schools," and occasionally consist of great numbers; I have seen in one school as many as five or six hundred. With each school of females are always from one to three large "bulls"—they are called the "schoolmasters." The males are said to be extremely jealous of intrusion by strangers, and to fight fiercely to maintain their rights. The full-grown whales almost always go alone in search of food; and when they are seen in company they are supposed to be migrating from one "feeding ground" to another. The large whale is generally very incautious, and if alone he is without difficulty attacked, and by expert whalers very easily killed.—BEALE.

AMONG the various species of trees recently introduced into Egypt, the teak is considered by far the most valuable; it being the opinion of Mr. Traile, the English botanist, that it will thrive there as well as in India. About a dozen seeds having been sent as a present to Ibrahim Pasha from Hindoostan, they were sown in the English garden at Rhouda, towards the close of 1829. Three of them took; and in two years one of the specimens had reached the height of nine feet. A Turkish officer, walking in the garden, happening to observe the straightness and beauty of the tree, thought it would make a good *naboot*, and with one stroke of his sabre levelled it with the ground.—ST. JOHN'S *Egypt*.

SIR RICHARD ARKWRIGHT.

If any particular species of manufacture has risen to a height which brings honour to the country, wealth to the manufacturers, and comfort to the mass of the people, the man who contributes more than any other to the advancement of that manufacture, is surely worthy of our respect, our admiration, our imitation. The cotton manufacture of England can never be mentioned without reminding us of our obligations to Sir Richard Arkwright.

This benefactor to his country was born at Preston in Lancashire, on the twenty-third of December, 1732. He was the son of poor parents who had twelve other children, the difficulty of supporting whom, made education a very subordinate affair. Young Richard was brought up to the occupation of a barber, in which he continued until about his twenty-eighth year, when he quitted that occupation, and became a dealer in human hair, which he bought in different parts of the country, and then sold to the wig-makers; and he afterwards increased his profits by the application of a mode of dyeing hair.

His first exercise of mechanical ingenuity was an attempt to discover the *perpetual motion*, that quicksand upon which so many ingenious minds have been wrecked*. But he shortly afterwards directed his thoughts to a quarter from which richer fruits might be expected to result, and *did* result. That species of cloth called *calico* (from *Calicut*, a place in the East Indies, from whence it was first brought,) was made, before Arkwright's time, of linen and cotton; that is, the *warp* or long threads were formed of linen, and the *weft*, or cross-threads, of cotton; and the reason for this distribution was, that no means were known at that time by which cotton could be spun to sufficient strength to form the warp or longitudinal threads. The linen yarn for the *warp* was made on a sufficiently large scale to supply all the wants of the manufacturer readily, but the cotton *weft* was very slowly prepared.

The calico-manufacturers used to supply the female cottagers round about the country with linen yarn, and with cotton in the raw state, and they used to card and spin the cotton, and then weave the cloth,—the females doing the former, and the men the latter; and then the piece of woven cloth would be carried home to the manufacturer. Sometimes the females could not spin the cotton so fast as the weaver required it, and he had to trudge from cottage to cottage to obtain a sufficient supply of *weft* for his day's work: indeed the quantity of *weft* thus made did not amount to a hundred and fiftieth part of what is produced at the present day.

This was the state of things in Arkwright's days, and to remedy it was one of the objects of his attention. He began to form his plan, and looked about him for some one who could assist him in the mechanical details of a new machine. Such a person he found in John Kay, a clock-maker at Warrington, whose services he gained and retained for four or five years; first at Preston, and afterwards at Nottingham. He gave himself up entirely to the prosecution of his new invention, and struggled on in the midst of great poverty, for he had neither friends nor fortune. In 1767, he prevailed on Mr. Smalley of Preston, to afford him pecuniary assistance, to enable him to build a factory; and here he constructed his first machine, which was put up in a dwelling-house attached to the free grammar-school of that town. Arkwright was at this time so poor, that on one occasion during a contested election for Preston, of which he was a burgess, he could not appear at the hustings

until after the party for whom he voted had furnished him with a suit of clothes. After a short struggle he was forced to leave Preston, through the violent opposition of the spinners who worked on the old system; and he then removed to Nottingham.

When he arrived at Nottingham, he succeeded in getting the Messrs. Wright, bankers of that place, to advance sums of money to him for the prosecution of his undertaking; but as they found the sums required were larger than they had expected, they ceased to assist him further, but recommended him to the firm of Need and Strutt, of Derby, who had secured a patent for a very ingenious *stocking-frame*. Mr. Strutt examined Arkwright's model of his proposed machine, perceived its excellence, and suggested some valuable improvements; and in 1769, the three manufacturers, Need, Strutt, and Arkwright took out a joint patent for a machine for spinning with rollers.

Arkwright erected his first mill at Nottingham, which he worked by horse-power; but as this moving power was expensive, he built another mill at Cromford, in the parish of Wirksworth, in Derbyshire. This was turned by a water-wheel, in the same manner as Lombe's silk mill, at Derby, and was then called a *water-frame*, and the thread made by it was called *water-twist*.

Arkwright was now a manufacturer, and it has been stated in his praise, that although his early habits and education were little calculated to habituate him to carry on an extensive manufacturing concern, yet he adopted such a judicious method of subdivision and arrangement in his factory, that its excellence has been acknowledged and acted on to the present day, with a very few minor changes; and as such a manufactory never existed before his, from which he might copy, it strongly illustrates the originality of his mind.

The object of Arkwright's endeavours was, as we have slightly hinted, to obtain a strong and continuous thread from cotton, which could not be done by the old cottage method. His spinning frame contained two or more pairs of rollers, one roller being fluted, and the other which worked upon it being covered with leather. The cotton in the form of a thick but very soft cord, was passed between one pair of rollers, and slightly compressed:—then between another pair which revolved with much greater rapidity, and by this means drew the cotton out more and more narrowed.

From time to time Arkwright attentively watched the jenny-spinners in different parts of the country, who were earnestly employed in improving the machines used for carding and roving wool; and many ingenious contrivances were found out to shorten these operations. Mr. Arkwright kept an attentive eye on these contrivances, and by combining a number of them into a series of engines, he formed a complete system of carding and roving by machinery, for which he took out a second patent in 1775. But from this time he was involved in lawsuits of a very extensive and complicated character, arising from the attempts of other parties to avail themselves of the benefits of his ingenuity. In 1781, six years after obtaining the patent, several parties disputed his claim to monopoly, on the ground of some alleged obscurity in the specification of the patent. He brought the matter to trial before the court of King's Bench, and having lost a suit against one of the parties, Colonel Mordaunt, he gave up the rest; by which a number of persons were enabled to work with Arkwright's patented machine.

Thus matters continued for four years, when Arkwright, naturally wishing to reap the fruits of his own

ingenuity, in 1785 brought another action, in which he produced witnesses who proved that the description of his spinning-frame, as given in the specification of the patent, was quite clear enough to enable them to make such machines from the description. Arkwright gained the verdict, which spread alarm among a large number of manufacturers, who had established similar machines during the preceding four years. A formidable opposition was raised, the most eminent counsel were engaged, and a new suit was brought by the combined manufacturers against Arkwright, on the plea that a machine, somewhat similar in principle to his, had been known before the specification of his patent. The trial was ably conducted, and a verdict was given against Arkwright, by which the patent was annulled, and the machine made public property.

The legal effect of this verdict did not at all effect Arkwright's honour, for it is now believed that if there were a machine similar to his before his time, he was not aware of it, so that he acted with perfect integrity. The legal features of this question do not interfere at all with the commercial importance of the machine: on the contrary, the very fact of so many persons being eager to avail themselves of Arkwright's ingenuity, is a homage paid to it. Arkwright and his opponent all became enriched by his labours, and a new impulse was given to the cotton manufacture. During the run of the opposition, the other manufacturers refused to buy or use the cotton yarn which he made, and a large stock of it consequently remained on his hands. This stimulated him to new inventions, and he ultimately found means of using up all his yarn in cloths or calicoes of a new and particular kind.

For five years the Cromford mill yielded no profit, but after that, wealth flowed in abundantly. On the occasion of the attempted assassination of George the Third by Margaret Nicholson, an address was presented from the Hundred of Wirksworth by Mr. Arkwright, on which occasion he received the order of knighthood. In 1786, he was appointed High Sheriff of the county of Derby.

Industry, and incessant exercise of ingenuity and skill marked his career till death. From early life he had been afflicted with asthma, and that complaint, joined to some others, brought him to the tomb on the third of August, 1792, in his sixtieth year.

Thus did mechanical ingenuity, and indefatigable exertions, transform Richard Arkwright, the poor barber of Preston, into Sir Richard Arkwright, High Sheriff of Derby, with a fortune of not much less than half a million sterling.

ONE of the most curious and surprising of the actions of the sperm whale is that of leaping completely out of the water, or of "breaching," as it is called. The way in which he performs this motion appears to be by descending to a certain depth, and then making some powerful strokes with his tail, which are rapidly repeated, and thus convey a great degree of velocity to his body before it reaches the surface, when he darts completely out. When just emerged, and at its greatest elevation, his body forms with the surface of the water an angle of about forty-five degrees, the flukes lying parallel with the surface. In falling, the animal rolls his body slightly, so that he always falls on his side; he seldom breaches more than twice or thrice at a time, or in quick succession. The *breach* of a whale may be seen from the mast-head on a clear day at the distance of six miles.—BEALE.

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